Tele-ACT and Recreational Therapy:

Adapting Acceptance and Commitment Therapy for Telehealth Delivery to Support People with Chronic Pain During the COVID-19 Pandemic

Grace L. Roy and Semra A. Aytur
University of New Hampshire Department of Health Management and Policy

Study Purpose

To investigate the feasibility and efficacy of delivering acceptance and commitment therapy (ACT) with a recreational therapy component via telehealth

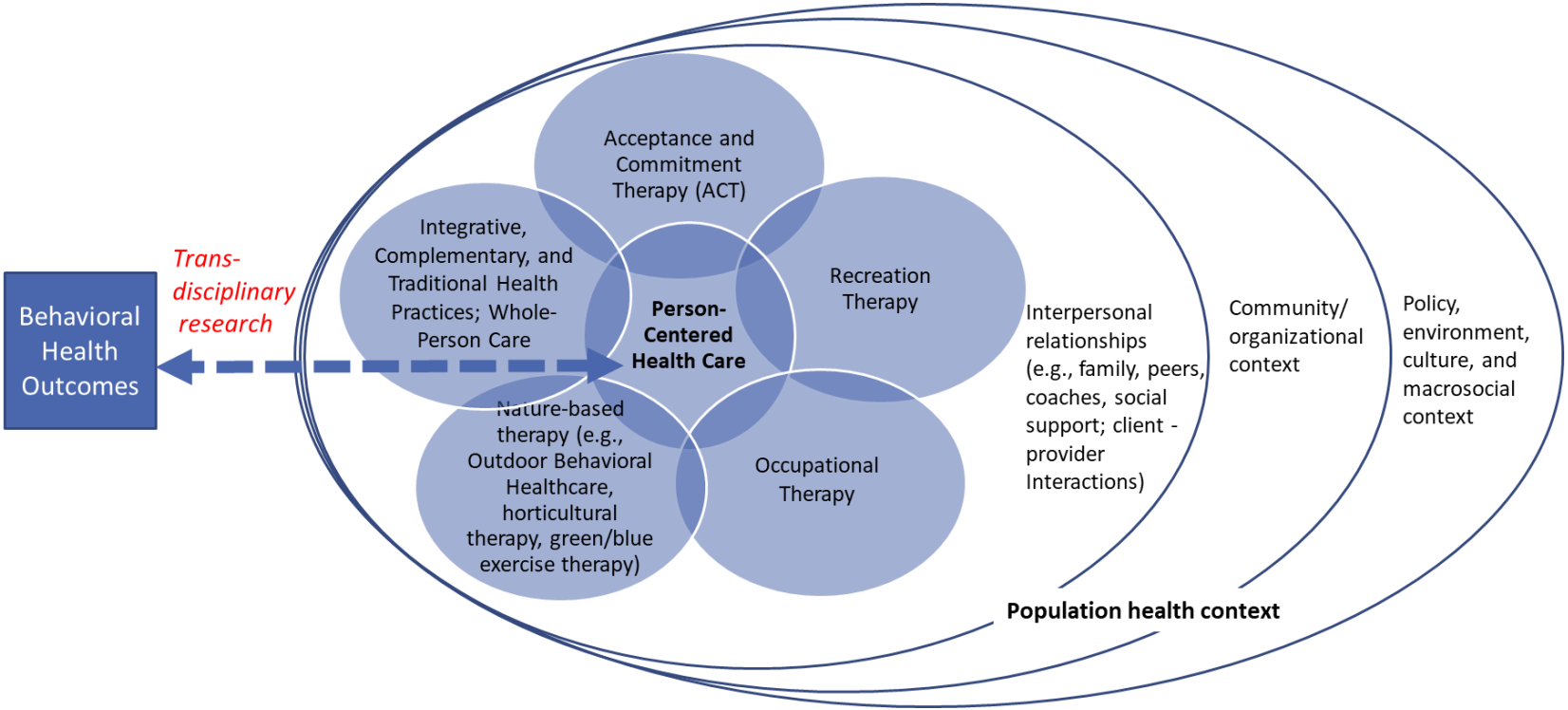
Background

Chronic pain, ACT, and recreational therapy

Chronic Pain

- Chronic pain is a significant public health problem
  - Impacts 11-40% of the US population[1]
  - Costs $560-$635 billion per year[2]
- Person centered and interdisciplinary approaches to chronic pain are considered the current best practice[3]

Bridging Person-Centered Health Care with Population Health Improvement[4]

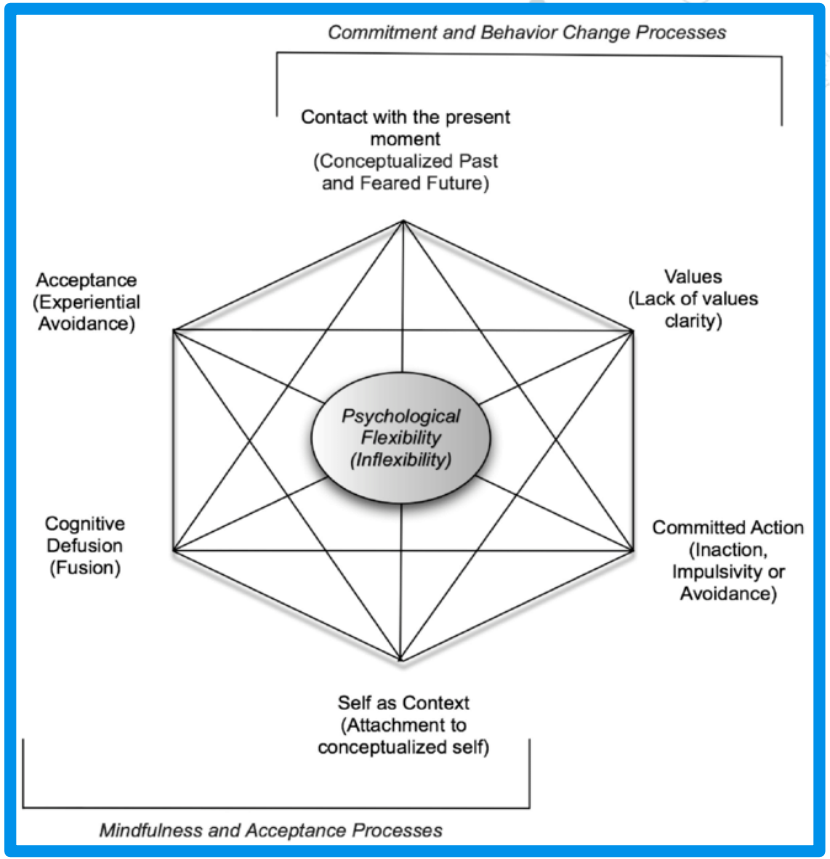


Acceptance and Commitment Therapy

- Transdiagnostic evidence-based psychological intervention
- Increases psychological flexibility by using acceptance, mindfulness, and behavior change strategies
  - Psychological flexibility: contacting the present moment fully and changing behaviors to work towards chosen values
- Enables clients to work through previously feared or avoided thoughts, feelings, memories, and/or physical sensations[5]

Components of Psychological Flexibility

- Contact with the present moment
- Values
- Committed action
- Self as context
- Cognitive defusion
- Acceptance[6]



Recreational Therapy (RT)

- Strength-based approach to treatment that using recreation as a modality to address needs of people with disabilities and chronic health conditions
- RT can complement ACT by
  - Supporting health and general quality of life
  - Enhancing social connections
  - Reinforcing positive aspects of identity among individuals with disabilities and chronic pain conditions[7, 8, 9]

ACT and Telehealth

Previous research and
current study aims

ACT Delivery Via Telehealth: Prior Research

Herbert et al. 2016[10]

- Randomized noninferiority trial
- Compared in-person and video teleconferencing delivery of an 8-week ACT intervention among 128 outpatient veterans with chronic pain
- Findings suggest that ACT delivered via video teleconferencing can be as effective and acceptable as in person delivery
- Significantly more participants withdrew from the study in the video teleconferencing group than in the in-person group

Context for Tele-ACT and Recreational Therapy Study

- Gap in the literature pertaining to adaptation of ACT for non-face-to-face delivery
- Due to the COVID-19 pandemic, individuals who could benefit from ACT may not be able to access it using traditional delivery formats
- Health-related and social impacts of the COVID-19 pandemic created unique challenges for people with chronic pain.[11, 12, 13]

This study begins to address this knowledge gap by examining the feasibility of delivering ACT via telehealth (Zoom platform)

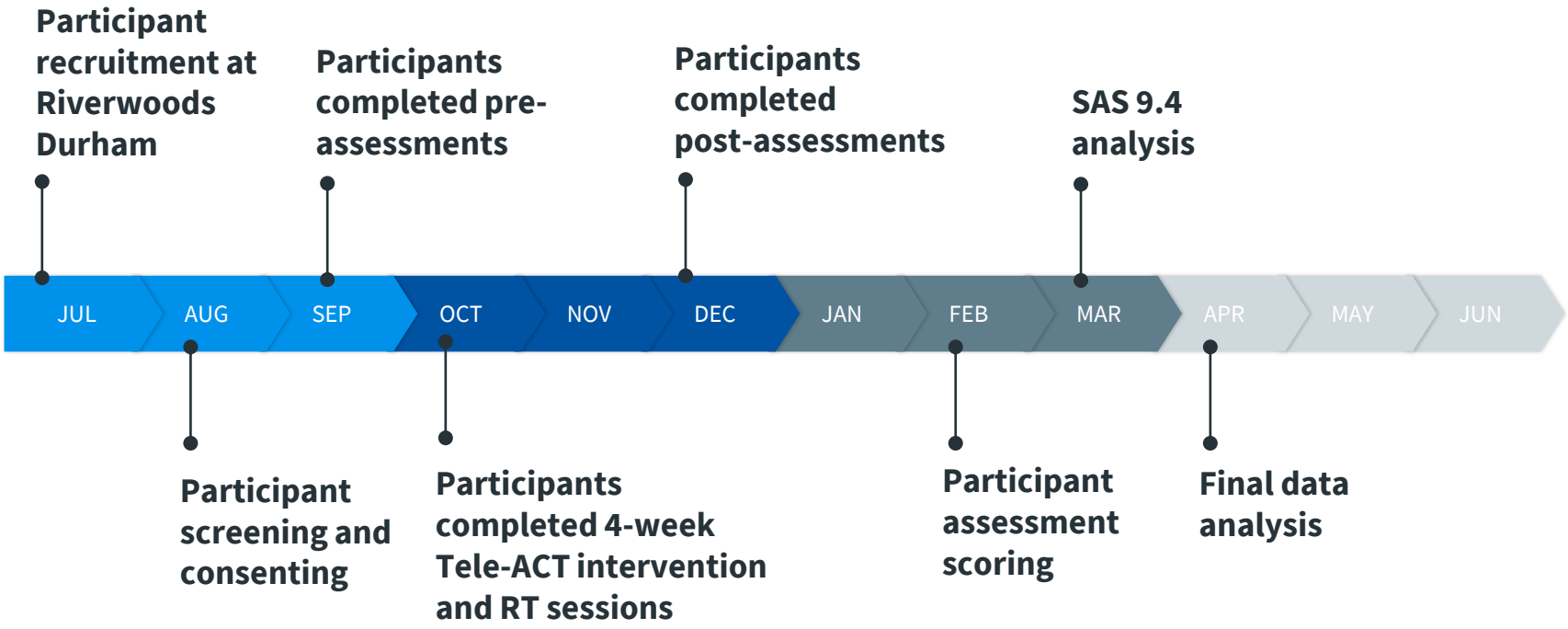
We hypothesized that Tele-ACT would be well-accepted and associated with similar positive behavioral changes observed in our prior face-to-face ACT study.[14]

Tele-ACT and RT: A Pilot Clinical Trial

Participant Characteristics

- N = 7
- Three assigned male at birth, four assigned female at birth
- Participants were 24-88 years old, with five participants being 76 years or older
- Pain conditions included:
  - Osteoarthritis
  - Musculoskeletal pain
  - Fibromyalgia
  - Compression fractures

Tele-ACT RT Study Timeline



Outcome Measures

- NIH Toolbox NeuroQoL
  - Cognitive Function, Social Role Satisfaction, Stigma, Upper Extremity Function, Sleep Disturbance, Positive Affect, Lower Extremity Function, Fatigue, Emotional Behavioral Dyscontrol, Depression, Anxiety, Social Role Participation, Communication
- Brief Pain Inventory (BPI): Pain intensity
- Psychological Inflexibility in Pain Scale (PIPS): Psychological inflexibility
- Acceptance and Action Questionnaire (AAQ-II): Psychological inflexibility
- Chronic Pain Acceptance Questionnaire (CPAQ): Chronic pain acceptance
- Center for Epidemiological Studies Depression (CES-D): Depression

Analysis

- Completed using SAS 9.4 and AI-Therapy Statistics Beta.
- Analysis steps:
  - Descriptive statistics
  - Paired-t test and Wilcoxon signed-rank test
  - Correlations
  - Regression analysis
  - Causal mediation analysis

Results and Discussion

Results

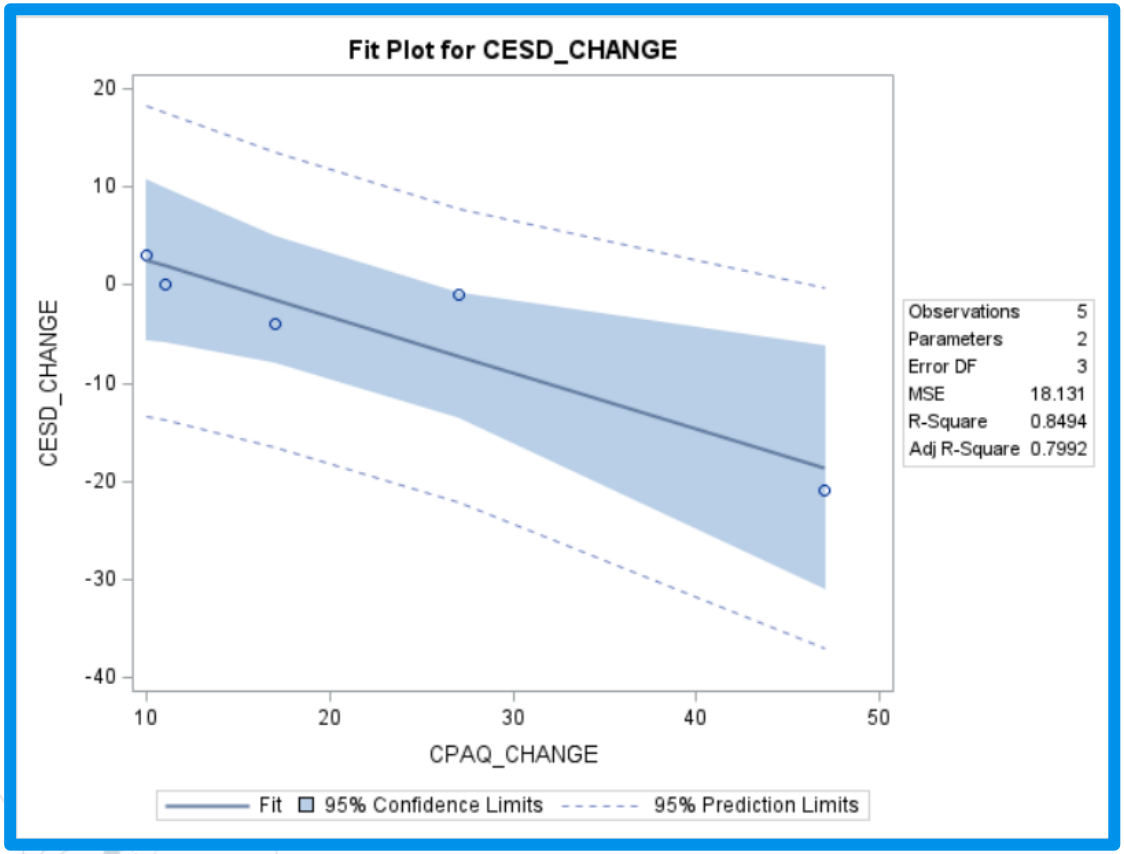
Measure	Mean Change Score	Standard Deviation	p Value	Bootstrap 95% CI Lower Limit[b]	Bootstrap 95% CI Upper Limit[b]	Effect Size (Cohen's d)
Acceptance and Action Questionnaire II (AAQ-II)	-4.2	3.96232255	**0.0768***	-7.2000	-1.2000	0.004
Chronic Pain Acceptance Questionnaire (CPAQ)	22.4	15.323185	**0.0308****	11.8000	35.6000	0.374
CPAQ, Activity Engagement	11.2	9.54986911	**0.0586***	4.4000	19.2000	0.334
CPAQ, Pain Willingness	11.2	6.09918027	**0.0148****	7.0000	16.4000	0.388
NeuroQoL Lower Extremity Function	2	2.5819889	**0.0863***	0.2857	3.8571	0.396
NeuroQoL Stigma	-3.2857143	4.15187852	**0.0812***	-6.0000	-0.4286	0.87

* = significant at $p < 0.1$, ** = significant at $p < 0.05$

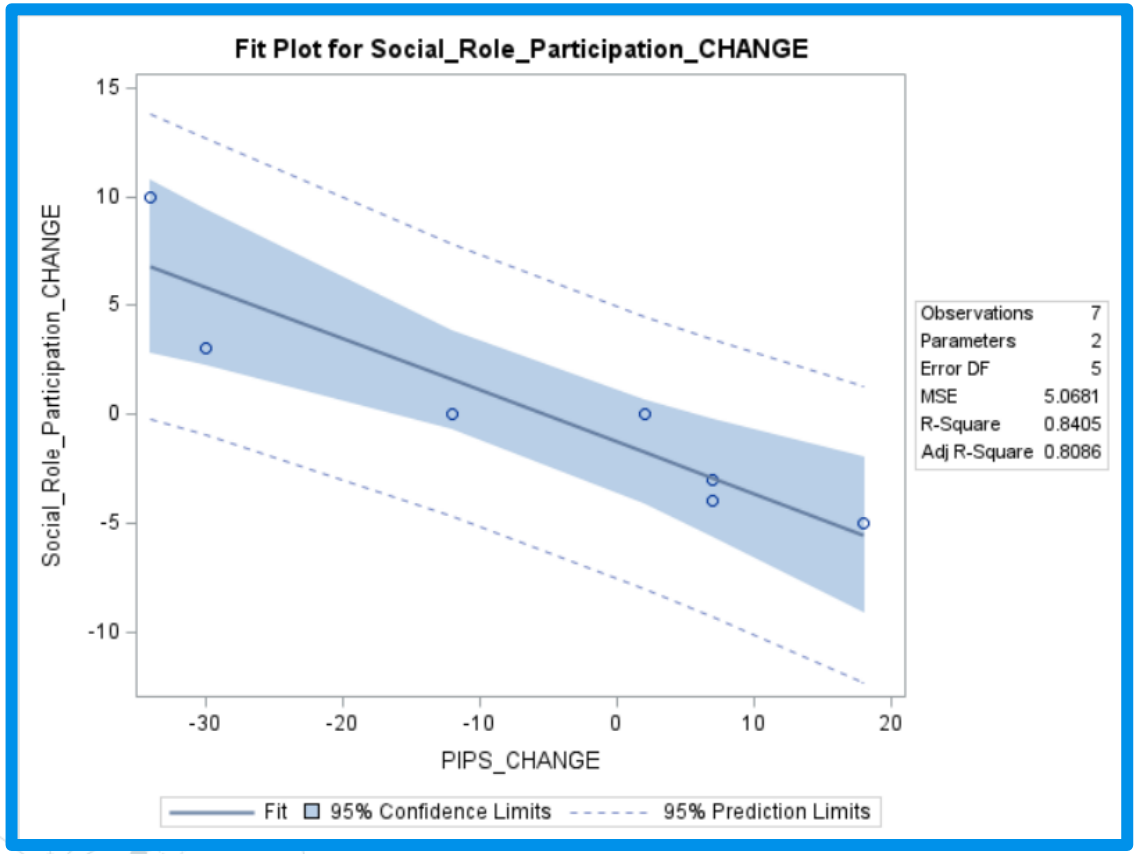
[b]Bootstrapping allows for a more accurate, bias-corrected estimation of the 95% Confidence Intervals of the mean for small samples through repeated statistical resampling of the data. Data was bootstrapped to 10,000 replicates.[15]

Results - Correlations

Measure 1	Measure 2	r	p Value
Acceptance and Action Questionnaire II (AAQ-II)	Center for Epidemiological Studies Depression (CES-D)	**0.89901**	0.0379
Chronic Pain Acceptance Questionnaire (CPAQ)	Center for Epidemiological Studies Depression (CES-D)	**-0.92164**	0.026
Psychological Inflexibility in Pain Scale (PIPS)	NeuroQol Social Role Participation	**-0.91678**	0.0037

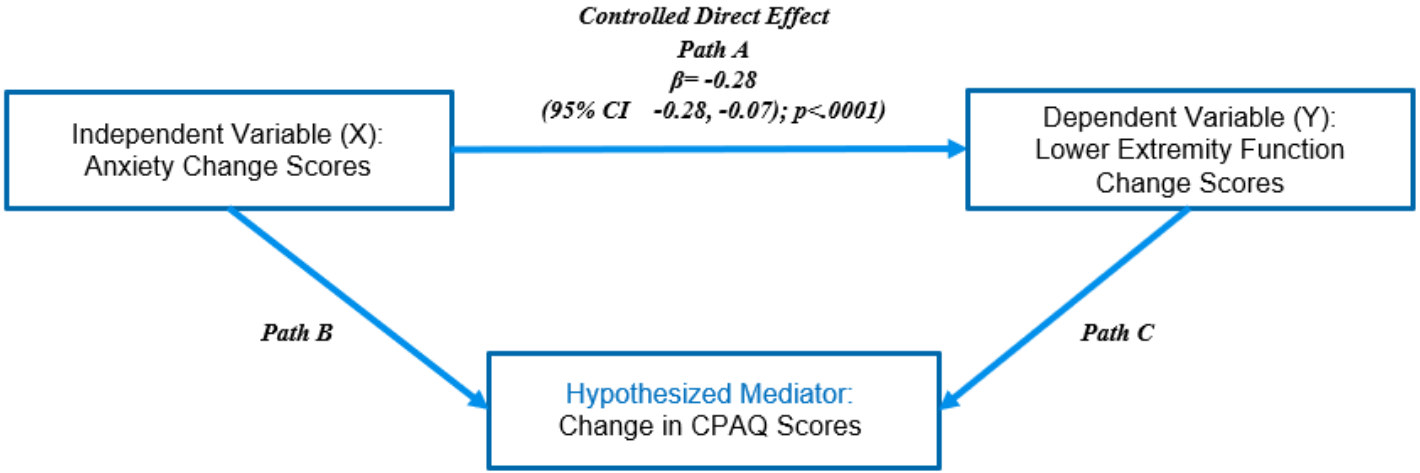


Pain Acceptance and Depression



Psychological Inflexibility and Social Role Participation

Causal Mediation Model[16]



The total causal treatment effect consists of: (1) a controlled direct effect (Path A); (2) a mediated (or Natural Indirect Effect (NIE)) via changes in CPAQ Scores (Paths B and C).

***Changes in CPAQ scores mediate the relationship by approximately 47%**

Discussion

- Tele-ACT with RT was associated with:
  - Increased chronic pain acceptance
  - Increased psychological flexibility
  - Increased lower extremity function
  - Decreased stigma
- Domains of pain willingness and pain acceptance (CPAQ scores) may mediate the relationship between anxiety and lower extremity function, even after controlling for baseline levels of pain intensity.

Challenges and Lessons Learned

- Participants were overall satisfied with the telehealth modality
- ACT and recreational therapy can be effectively delivered via telehealth, but support with technology may be required for specific populations to maximize accessibility
- Challenges coordinating participant scheduling of ACT sessions and pre/post assessments
- ACT interventionists should be prepared to work through grief and trauma with participants

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Any questions?

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